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Policy Instruments Used by States Seeking to Improve School Food Environments

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US legislatures and program administrators have sought to control the sale of foods offered outside of federally funded meal programs in schools, but little is known about which policies, if any, will prevent obesity in children.

We used a theoretical policy science typology to understand the types of policy instruments used by US state governments from 2001 to 2006. We coded 126 enacted bills and observed several types of instruments prescribed by state legislatures to influence the foods sold in schools and improve the school food environment.

Our study helps to better understand the various instruments used by policymakers and sets the stage to examine the effectiveness of the policy instruments used to prevent obesity. (*Am J Public Health.* 2012;102:222–229. doi:10.2105/AJPH.2011.300338)

IN THE UNITED STATES OVER the past 20 years, the prevalence of obesity has increased from 6.5% to 17.0% among children aged 6 to 11 years and from 5.0% to 17.6% among those aged 12 to 19 years.[1–3] Sugar-sweetened beverages and unhealthy snacks are associated with obesity among children and young people in these age groups.[4–6]

Children obtain sugar-sweetened beverages and snacks predominantly at home and at restaurants, stores, and schools. Because children spend most of their waking hours in school and have multiple opportunities to eat while there, improving the school food environment is a target of policymakers seeking to improve dietary intake and reduce obesity.[7] Intervention research has demonstrated that changes in school meal programs and à la carte programs can alter children's dietary behaviors,[4,8] and recently legislatures and program administrators have sought to control the sale of competitive foods (i.e., foods offered outside of federally funded meal programs), which are generally high in fat and sugar and low in nutrients.[9,10]

Policies intended to control the sale of competitive foods vary widely, and little is known about which, if any, of these policies reduce obesity in children. There are substantial gaps in knowledge about evidence-based policies in public health, but the science of policy analysis and understanding contextual factors associated with the selection of policy tools is gaining recognition in the field of public health policy.[11] In this regard, public health research can benefit from studies of policy processes, content, and outcomes that incorporate policy science frameworks and theory.[12–14] To help meet that need, we used a theoretical framework from the policy science literature to help understand the policy instruments used by state governments to address the high prevalence of childhood obesity in the United States.[15]

Policy instruments are the tools prescribed by policymakers to bring about proposed changes in a policy (i.e., the "devices government has at its disposal for implementing policies"[15(p87)]). We studied legislation related to the sale or availability of competitive foods in schools to identify the types and range of policy instruments used in this sector. Specifically, we examined the policy instruments used during 2001 to 2006 by legislatures in the 50 US states seeking to improve the school food environment in the context of addressing child obesity.

Although the legislative bills we analyzed cannot illuminate all of the rich social process and social environment contexts that are crucial to an understanding of the substance of policy development and ultimate implementation success or failure, our analysis provides a better understanding of the policy instruments used by state legislatures in their attempts to achieve their policy intents. Our main objective was to formulate a policy framework that classifies the types of policy instruments used by policymakers, so the reasons for their selection and their impact, or lack of it, might be better understood. Here we describe the salient features of the framework and illustrate its utility in understanding the choices governments have made and the opportunities they have

missed in their efforts to control child obesity.

A POLICY INSTRUMENT TOOLBOX

In the simplest terms, policymakers develop policies, or statements of intent, using (or instructing others to use) their governing resources (e.g., money or authority) to manage policy problems and attain policy goals. Policy instruments have been extensively described and studied in the policy science literature but are rarely described or discussed in the public health literature. The policy science literature provides case studies of their use as well as frameworks or taxonomies that simplify the task of understanding the types of policy choices faced by governments.[16]

As an overarching category, policy instruments are differentiated into 2 basic groups: symbolic and material.[17] A symbolic policy instrument serves the primary function of articulating aspirations for social betterment (e.g., improved child health) but will not necessarily lead to implementation of any new actions (e.g., changes in school food availability or better funding for nutrition instruction) on the ground. Legislatures, for example, often use resolutions to state these symbolic aspirations.

Material policy instruments, by contrast, are likely to result in changes in actual implementation practices. Material instruments can be further categorized as either substantive or procedural instruments. Material procedural policy instruments are those that affect implementation processes, for example creating a task force to address child obesity. Material substantive policy instruments affect the delivery of various kinds of goods and services to policy targets, such as changing the nutritional content of foods sold in school cafeterias.[18–20] A nuanced understanding of policy instruments related to child obesity requires study of these different types of instruments.

Such a nuanced understanding is generally lacking in the public health literature. Recently, however, Mello et al.[21] described the need to examine policies developed via legislation, administrative rule, and voluntary regulatory guidance for improving the school food environment in the United States through the lens of their procedural or substantive nature. Procedural instruments, they argued, would alter aspects of policy processes related to competitive foods (e.g., requiring that policies be administered at lower levels of government or by certain administrative units), whereas substantive instruments should lead to changes in the social issues of interest (in this case, competitive-food availability).[15] They encouraged public health audiences to begin thinking about policy instruments through this frame, derived from policy science.[22–24]

TAXONOMY OF MATERIAL POLICY INSTRUMENTS

Hood[23] and Howlett[20,24] have presented a policy science typology to categorize material policy instruments. In addition to the general purpose of substantive and procedural policy instruments, they categorized these instruments according to the principal governing resource prescribed as a vehicle to bring about change. The policy instruments presented in Table 1 are examples of the types of instruments included in the Howlett and Hood typology.[15,23] The typology comprises 4 types of governing resources, as follows.

1. Information or knowledge: the instrument seeks to educate policy targets or otherwise alter their behavior. Examples include requirements for nutrition education in wellness policy legislation[25] (as described by Mello et al.[21]) and the development and administration of recent nutrition guidelines and standards in schools by administrative agencies.[26]
2. Authority: the instrument can be used, for example, to regulate the types of foods that can be sold to children directly.
3. Treasury: the instrument prescribes the use of financial resources of the government such as providing grants or taxing food products. These taxes and subsidies are designed to provide incentives for changes in corporate and consumer behavior. In this context, Mello et al.[21] pointed to examples of states that have attempted to legislate taxation on sweetened beverages.
4. Organizational structure: the instrument stipulates that government employees will carry out relevant tasks such as delivering goods or services (e.g., direct delivery of school cafeteria food services).

Although in theory all of these forms of policy instruments are available to them, policymakers may lack the knowledge, finances, authority, or organizational resources required in specific circumstances and situations.

A government's existing implementation style is defined by the type of instrument it employs in particular circumstances. Implementation styles can have a significant impact on policy outcomes and the likelihood of success of efforts in areas such as child obesity. We focused on the types of instruments most commonly used to address the school nutrition environment and potentially powerful instruments that governments have chosen not to use.

METHODS

We examined bills introduced in the 50 state legislatures from 2001 to 2006 (although other indicators such as administrative policies can offer a picture of policy activity in a particular context, study of legislation is a valid indicator of instrument choices). The content of the bills was obtained through an online legislative database provided by NetScan.[27] We used the following search terms in NetScan to identify 1267 bills that addressed the issue of improving school food environments: nutrition, obesity, vending machine, breakfast, lunch, snack, beverage, soda, pop, à la carte, or food. Our search specified that these terms appear within 10 words of "school(s)" in the bill text.

These 1267 bills were in different stages of the legislative process, including some that had just been introduced into the system and some that had been enacted by the

TABLE 1—Types of Material Substantive and Procedural Instruments According to the 4 Governing Resources

Information or Knowledge	Authority	Treasury	Organizational Structure
Substantive			
Advice	Regulation	Grants	Administration
Training	Self-regulation	Loans	Public enterprises
Reporting	Licenses	Tax credits	Policing
Registration	Census-taking	Tax expenditures	Record keeping
Procedural			
Education	Agreements	Interest group funding/creation	Conferences
Advertising	Treaties		Judicial review
Information provision/withdrawal	Advisory committees/commissions		Hearings
			Evaluations
			Government reorganization

Source. This material was derived from Howlett and Ramesh.[15]

legislature. We focused on enacted bills (i.e., legislation enacted after bills have passed both chambers of the legislature in identical form and been signed into law by the governor, become law without his or her signature, or passed over his or her veto[28]) so that we could gain an understanding of the actual choices of instruments made by policymakers.

We categorized and coded the content of 126 bills from 50 states that focused on decreasing the availability of competitive foods and creating healthy food environments in schools. We used Atlas.ti version 5.2 (Atlas.ti GmbH, Berlin, Germany) qualitative software to code the text of each bill.

We first categorized the 126 enacted bills as symbolic or material. (In some instances material coding could have been symbolic, or vice versa, but this was difficult to discern without a detailed examination of each case in terms of whether funding was subsequently made available for implementation, a subject which was not possible to address in an article of this length; in addition, this issue would be expected to affect only a small number of cases at most.) We then coded the text of the material bills according to the Hood and Howlett policy typology (Table 1). Specifically, we used thematic coding to indicate whether the bill included substantive instruments, procedural instruments, or both. The bill text was then further coded for the types of governing resources (i.e., information, authority, treasury, or organizational) used. This created a bill-level data set in which 0 or 1 indicated the presence or absence of a particular kind of policy instrument in a bill; any single bill could include multiple instruments. In addition, we used these codes to observe any patterns present in the types of policy instruments used during the 6-year period under study.

As an example of the types of policy instruments employed, the Kentucky legislature used a substantive informational instrument in its efforts to improve student health (Kentucky House Bill 126). This instrument was classified as substantive because the government used information to educate the policy targets (Table 2). As an illustration of substantive use of authority, Tennessee's legislature required that all schools follow minimum nutrition standards (Tennessee Bill 783). In Iowa, the legislature used a substantive policy instrument with treasury as a governing resource (Iowa Bill 2124). The Iowa legislature required that the state department of education establish a grant program expanding an existing community intervention program for obesity prevention.

We followed a similar methodology for procedural instruments. For instance, through a procedural information instrument, the New York legislature stated its intent to promote New York agriculture in classrooms and instructed a variety of local and state organizations to establish a promotional event (New York Senate Bill 4886). The use of authority in procedural policies was found, for example, in Arkansas, where every school district was encouraged to establish an advisory council to provide guidelines including nutrition standards for school foods (Arkansas Bill 1583).

In one of the California policies, treasury was used as the governing resource, with procedural features establishing a policy in which a medical university located in a particular community would be responsible for sponsoring and conducting a community-wide obesity prevention symposium (California House Bill 9). Finally, a Texas bill planned community hearings, a procedural policy in which organizational structure was used as the governing resource (Tex Bill 474).

RESULTS

In 2001, 77 bills were introduced in the 50 states; 70 of these bills were not enacted. This pattern of enacting less than 10% of

TABLE 2—Examples of the Bill Text Codes for the Specific Types of Substantive and Procedural Policy Instruments

Instrument Type	Example
Substantive information	Kentucky House Bill 126: "The Department of Education shall provide leadership and assistance to local school districts relating to student health services. The department, working in cooperation with the Department for Public Health, shall provide, contract for services, or identify resources to improve student health services, including but not limited to the following: . . . Standardized protocols and guidelines for health procedures to be performed by health professionals and school personnel. The protocols and guidelines shall include, but not be limited to, the following: 1. The delegation of nursing functions consistent with administrative regulations promulgated by the Kentucky Board of Nursing; 2. Training of designated nonmedical school personnel."
Substantive authority	Tennessee Bill 783: "The state board of education, in consultation and cooperation with the department of education and the department of health, shall promulgate rules to establish minimum nutritional standards for individual food items sold or offered for sale to pupils in grades pre-kindergarten through eight (pre-K–8) through vending machines or other sources, including school nutrition programs."
Substantive treasury	Iowa Bill 2124: "The department shall establish and implement a grant program that expands an existing community intervention plan for preventing obesity with nutrition and physical activity approved by the Centers for Disease Control and Prevention of the United States Department of Health and Human Services. The purpose of the program shall be to increase the physical activity and fruit and vegetable consumption of targeted youth of elementary school age, with a long-term objective of developing a model program that will support and sustain such healthy behavior and incorporate sixty minutes of physical activity per day, which can be replicated in other communities." Montana House Bill 353: "School breakfast program. (1) It is the goal of the state of Montana to make available to all students a breakfast at the beginning of each school day. (2) A school district that wishes to participate in the school breakfast program may apply to the superintendent of public instruction for startup funds to establish the program."
Substantive organization	None
Procedural information	New York Senate Bill 4886: "The department shall also coordinate with the education department, and school food service, education, health and nutrition, farm, and other interested organizations in establishing a promotional event, to be known as New York Harvest for New York Kids Week, in early October each year, that will promote New York agriculture and foods to children through school meal programs and the classroom, at farms and farmers' markets and other locations in the community."
Procedural authority	New York Bill 6738: "Every school district is hereby authorized and encouraged to establish a child nutrition advisory committee." Arkansas Bill 1583: "Convene a school nutrition and physical activity advisory committee that shall include members from school district governing boards, school administrators, food service personnel, teacher organizations, parents, students, and professional groups such as nurses and community members, to: (A) Help raise awareness of the importance of nutrition and physical activity; and (B) Assist in the development of local policies that address issues and goals, including, but not limited to, the following: . . . Assisting with the implementation of nutrition and physical activity standards developed by the committee with the approval of the Department of Education and the State Board of Health."
Procedural treasury	California House Bill 9: "This bill would require the President of the Charles R. Drew University of Medicine and Science to appoint an internal steering committee, as well as an external advisory committee to oversee and evaluate all institute activities. This bill would require the institute to sponsor and conduct an annual communitywide symposium, known as the Urban Community Health Forum, to report on the progress of the institute, offer technical assistance workshops, and provide an overview of local, regional, and national efforts in health disparities. This bill would provide that these provisions shall be implemented only to the extent that private or federal funding is received for this purpose."

Continued

TABLE 2—*Continued*

Procedural organization	Texas Bill 474: "To the extent that funds are available, the interim committee shall hold hearings throughout the state to: (1) determine the nutritional content and quality of foods and beverages served to public school children, including food service meals, a la carte foods, and competitive foods and food provided in vending machines; (2) evaluate the short-term and long-term financial, psychological, and physiological impact of obesity in public school children; (3) assess the academic, emotional, and health value of a universal breakfast and lunch program by evaluating school children from school districts that provide each child a free or reduced-price breakfast and lunch; and (4) evaluate school contracts relating to competitive food products and vending machines, including the following issues related to competitive food products and vending machines: (A) economic and other impacts of potential conflicts of interest; (B) the length of contracts; (C) advertising and marketing of competitive food products; (D) revenues realized by schools and school districts from the sale of competitive food products; (E) officials in charge of receiving and disbursing revenue and the accounting of that revenue; and (F) the extent to which competitive foods impact each school district's food service program." Arizona Bill 2544: "Parents, pupils and community members may review food and beverage contracts to ensure that food and beverages sold on elementary school, middle school and junior high school campuses provide nutritious sustenance to pupils, promote good health, help students learn, provide energy and model fit living for life."

introduced bills was true for all years except 2005, when the percentage of enacted bills was close to 15%. Among the 126 bills enacted between 2001 and 2006, there were 44 symbolic resolution bills and 82 bills that contained at least 1 material policy instrument. Among the 82 material bills, 38 prescribed only procedural instruments, 32 prescribed only substantive instruments, and 12 prescribed a mix of procedural and substantive instruments.

The predominant policy instruments were procedural instruments in which information and authority were used as governing resources and substantive instruments in which authority (e.g., regulation) was used. Several trends in the use of these instruments were evident (Figure 1). There was an increase over time in the number of procedural instruments that used information and authority as governing resources as well as substantive instruments that used authority as a principal governing resource. There was a decrease in the number of procedural instruments in which treasury and organization were used as governing resources and the number of substantive instruments in which information

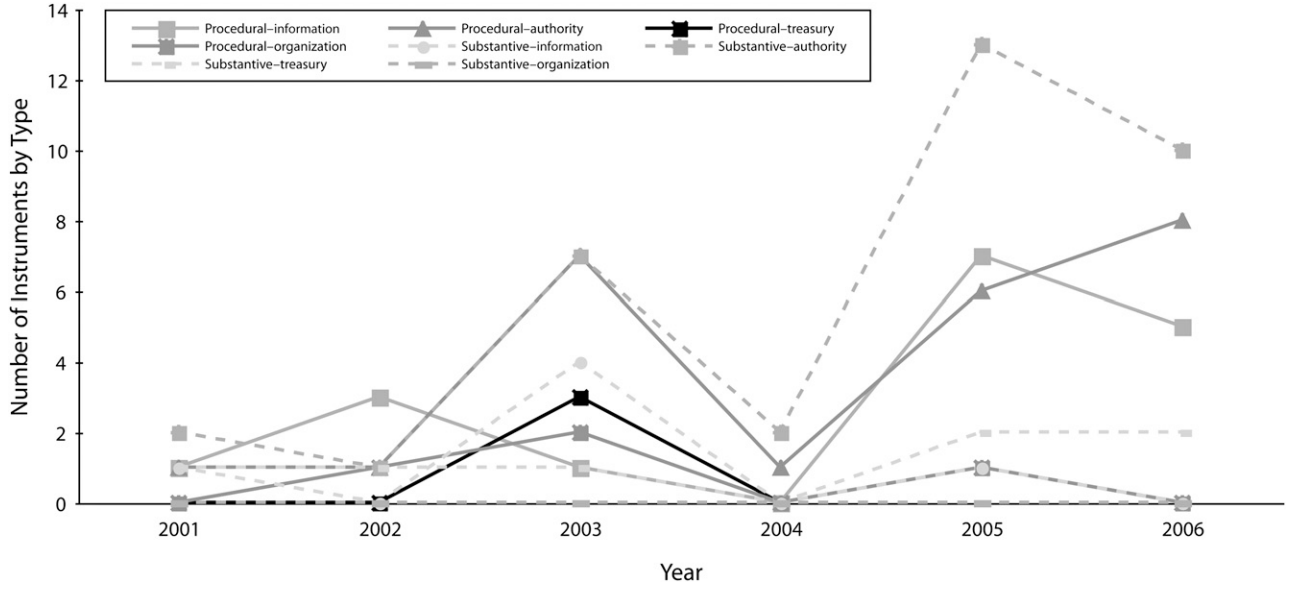

FIGURE 1—Types of policy instruments used to improve the school food environment: United States, 2001–2006.

was used as a central governing resource.

DISCUSSION

Use of a policy instrument typology such as that described here is important for the study of public policy and for public health policy advocacy because it allows systematic analysis of the options that are available for potential policy change and the ones actually used by governments.[29] Our examination of legislation seeking to improve school food environments indicates the consistent use of symbolic statements and an increased use of procedural instruments over time, with information and authority as the predominant governing resources. In previous policy studies, such a pattern of choices has been linked to the continued availability of these resources for many jurisdictions and issues, as opposed to more scarce governing resources such as treasury or organization.

Hood,[18] for example, has argued that this pattern of use of authority and information as governing resources in procedural instruments stems from the nature of these resources as being renewable vis-à-vis their financial and organizational counterparts. Also, use of procedural instruments has been linked to the presence of less coercive and more collaborative network relationships among policy actors (i.e., individuals, groups, or institutions involved in the policymaking process).[20]

Similarly, our results showed increasing use of substantive instruments in which authority is the predominant governing resource used (e.g., regulations dictating what foods can be offered in schools). These kinds of substantive instruments are classic command and control tools, the use of which is deeply entrenched in a US policy environment characterized by adversarial legalism.[30,31]

The Rationale for Instrument Choice

The use of concepts from the policy sciences to study policy instruments allows public health analysts and practitioners to recognize the pattern of instruments used. This contributes to future research needed to better understand the rationale behind the choice of particular instruments. In general, in the policy sciences choice of policy instrument is considered to be a function of a pair of factors.[15] The first is the severity of constraints on the government, such as the availability (or lack thereof) of specific governing resources. Constraints may be a result of varying financial resources or the nature of the political or policy environment. The second factor is the nature of the policy actors and their interrelationships (the complexity of the network of policy actors who form both the targets and designers of policy instruments).

These factors have been argued to affect policy instrument choices both singly and in terms of the mix of procedural and substantive instruments found in a particular sector. For example, policy scholars[15] suggest that when a government is highly constrained in terms of resources and is targeting a set of policy actors with limited network capacities, the types of substantive instruments used are likely to be regulatory and treasury-based procedural instruments which, in general, are not very costly in such environments and have easily measurable impacts on policy behavior and outcomes. By contrast, when there is a highly complex subsystem of policy actors (well-connected individuals, groups, and institutions) already in place and the state has sufficient resources (i.e., the constraints on the government are low), the types of instruments that can be used include treasury-based substantive instruments and those with authoritative procedural features better suited to such complex environments.[15]

Two states in our coded data, Kentucky and California, serve as an illustration of the merits of such hypotheses. We used 2005 to 2007 per capita income data from the US census[32] to indicate possible resource constraints faced by each state. Per capita income has been frequently used by economists as an indicator of a state's economic well-being.[33,34] Kentucky is at the lower end of the per capita income (median income: $40 029) distribution within the United States, and as such it can be classified as a state where the government may be functioning under high constraints. From 2001 to 2006, Kentucky primarily enacted regulatory-based substantive policies; that is, all of the 6 bills enacted involved substantive instruments. By contrast, California, a state among the highest in per capita income (median income: $56 311), saw a diverse range of policy instruments enacted during the same period (i.e., of the 19 bills enacted, 4 were resolutions and the others were a mix of procedural and substantive instruments) and are worthy of further investigation.

Kentucky may not have complex subsystems of policy actors in place and may need to rely on specific actors, which may have led to its choice of regulation-based substantive instruments. By contrast, California, with its more complex mix of policy actors, used various treasury-based instruments along with procedural instruments that encouraged formation of advisory committees or special interest groups. These examples are illustrative of how the context within a state can influence the choice of policy instruments and are worthy of further investigation.

Implications for Policy Research

The Hood and Howlett typology of policy instruments enabled us to understand important aspects of states' bills in terms of both their content and their evolution over time.[15,23] Our study integrates the policy science literature in the context of school nutrition environments and helps us better understand the various policy instruments implemented. We found that states have used several different types of instruments to govern the competitive foods sold in school and improve the school nutrition environment. What remains to be seen is the relative effectiveness of the various policy instrument mixes in creating a healthy school environment and improving child health outcomes. Our findings set the stage for such an examination of the effectiveness of

policy instruments with respect to child health outcomes and other public health issues such as environmental health or adult obesity.

Many policy advocates and researchers have already assumed that using regulatory instruments with legislative authority will lead to the greatest benefits for children. Mello et al.,[21] for example, classified regulatory instruments as strong or weak and examined the impact of these instruments on efforts to control the kinds of beverages served in schools. According to Mello et al., a strong policy instrument represents a legislative mandate for a state administrative agency to develop regulations. Symbolic policy instruments are weak according to their classification.

This assumption that policy instruments are inherently strong or weak, however, is contradicted by studies in the field of policy sciences showing that, at least in theory, instruments are to some extent interchangeable. Multiple instruments may have a similar impact on policy outcomes, with choices among instruments being more contextual and procedural than technocratic in nature.[35]

A recent trend in policy studies thus focuses on understanding the optimal mix of instruments, such that any policy instrument can contribute to improvements in the school food environment if it is part of the optimal mix of policies for a given context.[35–38] Policy choice is understood as a function of the interplay between various instruments (such as the ones described here) and the environmental context within which instruments are selected. In other words, advocating for regulation rather than a resolution may or may not result in the adoption of a stronger instrument, depending on the policy development context. Policy instruments are not "one size fits all." Depending on their resource capability and the structure of the policy networks involved, some states might benefit children more by legislating what foods will be available to them, whereas other states might benefit them more by encouraging that local communities develop local policies on school food.

Conclusions

Future research on childhood obesity policies should not assume that substantive authoritative regulation is the only path to improved child nutrition.[39] There is a dearth of knowledge in the public health field around understanding the linkages between different policy instruments. Evaluations of the synergistic effects of policies that incorporate multiple instruments, drawing on policy science insights such as those laid out here, are required before definitive statements regarding the merits and demerits of any single tool such as substantive authoritative regulations can be made.[40,41] ■

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Contributors

M.R. Shroff planned and conducted the analyses and participated in the writing and revision of all drafts. S.J. Jones developed the original research questions, planned the analyses, and participated in the writing and revision of all drafts. E.A. Frongillo participated in the revision of all drafts. M. Howlett developed the conceptual basis for the analysis, provided guidance in its use, and participated in the writing and revision of all drafts.

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The Impact of the Individual Mandate and Internal Revenue Service Form 990 Schedule H on Community Benefits From Nonprofit Hospitals

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In response to a growing concern that nonprofit hospitals are not providing sufficient benefit to their communities in return for their tax-exempt status, the Internal Revenue Service (IRS) now requires nonprofit hospitals to formally document the extent of their community contributions.

While the IRS is increasing financial scrutiny of nonprofit hospitals, many provisions in the recently passed historical health reform legislation will also have a significant impact on the provision of uncompensated care and other community benefits.

We argue that health reform does not render the nonprofit organizational form obsolete. Rather, health reform should strengthen the nonprofit hospitals' ability to fulfill their missions by better targeting subsidies for uncompensated care and potentially increasing subsidized health services provision, many of which affect the public's health. (*Am J Public Health.* 2012;102:229–237. doi:10.2105/AJPH.2011.300339)

INTERNAL REVENUE CODE § 501(c)(3) exempts nonprofit hospitals from federal income taxes. Since 1969 the community benefit standard[1] has been the criteria by which the deservedness of tax exemption has been determined.[2] There is, however, a long-standing debate in both the health policy and economics literatures on whether there is a substantial difference between the actions of for-profit and nonprofit hospitals, with empirical evidence supporting both schools of thought.[3] The inconclusive nature of this research helped spur political and legal action regarding community benefit provision by nonprofit hospitals.[4] In response to this growing concern that nonprofit hospitals are providing insufficient benefits to their communities in return for their tax-exempt status, the Internal Revenue Service (IRS) has revised Form 990 requiring nonprofit hospitals to submit additional detailed financial documentation regarding their community benefit expenditures on Schedule H beginning with 2009 filings.